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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,477	07/30/2001	Adrian Bot	17945.014	3914

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NEKTAR THERAPEUTICS
150 INDUSTRIAL ROAD
SAN CARLOS, CA 94070

EXAMINER	
SAUNDERS, DAVID A	

ART UNIT	PAPER NUMBER
1644	18

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
919,477	BOT et al.
Examiner	**Group Art Unit**
SAUNDERS	1644

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☑ Responsive to communication(s) filed on 5/19/03.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☑ Claim(s) 1-80 is/are pending in the application.

Of the above claim(s) 1-31, 42-50, 56-80 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☑ Claim(s) 32-41, 51-55 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____.

Attachment(s)

☑ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☑ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

Claims 1-80 are pending.

Applicant's election without traverse of Group II (claims 32-41 and 51-55) in Paper No. 15 is acknowledged. Applicant's election of species of the surfactant as a phosphatidylcholine is acknowledged.

The disclosure is objected to because of the following informalities:

In EXAMPLE 28 (pg 44), does applicant intend to recite –according to Ex. 27— in lieu of "according to Ex. 22"?

Appropriate correction is required.

Claims 32-41 and 51-55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 32 and 51 each recite "a microparticle composition" and then recite 3 and 2 components, respectively. It is unclear in each case as to which of the recited components are in particulate form -- e.g. are all three components of claim 32 what form the particles; are the surfactant and carbohydrate what form the particles, which would be suspended in a solution of antigen? Applicant must clarify in a manner consistent with Examples disclosed.

Further, in claim 32 there is no nexus between the "antigen" component and the "disorder".

In claims 34-36, 52 and 55 "the main surfactant" lacks antecedent basis.

Claims 32-36, 39-41, 51-52 and 55 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled

in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant has not adequately described the nature of the carbohydrate and of the lectin receptors on antigen presenting cells that would be operative for treating an autoimmune disorder. Applicant is attempting to define a genus of carbohydrates and of lectin receptors by virtue of their function (treatment of an autoimmune disorder) and by virtue of their localization (on APCs). Since APCs can have a myriad of lectin receptors (e.g. Stahl, ref 15) that can have unpredictably different or even opposing results in terms of the arm of the immune response that is activated or suppressed, mere generic recitations of "carbohydrate" and "lectin receptors on antigen presenting cells" do not adequately describe applicant's invention. Apart from the disclosure of the lectin receptor as a mannose/mannan receptor and the carbohydrate as mannose/mannan, one of skill could not envision the structural features of carbohydrates that would be used in a microparticle composition for suppressing autoimmune responses.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 32-35, 37, 39, 41 and 51-53 are rejected under 35 U.S.C. 102(b) as being anticipated by Edwards et al (WO 98/31346 or US 5,985,309).

WO and US disclosures are the same. For convenience, examiner will refer to the US reference by col. and line nos.

Edwards et al show microparticle compositions comprised of a therapeutic agent, phospholipid (e.g. DPPC), and excipient (e.g. lactose). The DPPC component serves as the instant surfactant (col. 7, lines 11+). The lactose component serves as the instant carbohydrate that binds to lectin receptors on APCs; evidence that this is inherently so comes from instant Example 24. Given the relative percentages of DPPC and lactose used by Edwards et al in Example 6 (col. 23, line 29), it is clear that these are consistent with the limitations of instant claims 51-53. While Edwards et al teach nothing about use of such particles for treatment of an autoimmune disorder, intended use in preamble carries no weight.

Given the relative percentages of DPPC and lactose used by Edwards et al in Examples 9 and 11-12, it is clear that these are consistent with the limitations of instant claims 32, 34-35, 37, 39 and 41. While Edwards et al teach nothing about use of such particles for down regulating the immune response for the treatment of an autoimmune disorder, intended use in preamble carries no weight. Claim 33 is included since instant disclosure indicates that insulin of Examples 9 and 11-12 is inherently an autoantigen associated with Type I diabetes.

Claims 32-35, 37-39, 41 and 51-54 are rejected under 35 U.S.C. 102(a) as being anticipated by Bot et al (WO 0/0215).

Bot et al teach formation of microparticles containing antigen, either one against which it is desired to enhance an immune response (e.g. a pathogen) or one against which it is desired to abrogate an immune response (e.g. an autoantigen associated with an autoimmune disorder). The microparticles additionally contain a phospholipid surfactant; these include various diphosphatidylcholines (pg 22, lines 18+); surfactants are present at levels from 1-95% (pg 23, lines 18+). The microparticles also contain a low percentage of mannans, in order to enhance

binding to the mannose receptor on APCs (pg 15, lines 9+). One of skill would immediately envision a "low percent of mannans" as encompassing the lower range of applicant's recited 1-60% of instant claim 51 and, most certainly, as being consistent with instant claim 32. From the above, claims 32,34-35, 37-38, 41 and 51-54 are anticipated.

Regarding dependent claim(s) 33 and 39, note Bot et al teach insulin at pg 20, line 2; and, as noted supra regarding Edwards et al, applicant has taught that insulin is inherently an autoantigen associated with type I diabetes.

It is to be noted also that, even if there were no teachings of autoantigens by Bot et al, claims 32, 34-35, 37-38 and 41 would be anticipated by an embodiment employing antigens of pathogens; note that claims 32 provides no nexus between the "autoimmune disorder" of the preamble and the "antigen" recited after "comprising."

Claims 32, 34-38, 41 and 51-55 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugimoto et al (5,759,572).

Sugimoto et al teach liposomes (microparticles) comprised of a conventional lipid (col. 6, line 30-col 7, line 10). These lipids includes phosphatidylcholines (col. 6, line 65; they can be obtained from egg yolk and hydrogenated (col. 6, lines 56-58).

In addition to such conventional lipids, the liposomes are comprised of glycolipid conjugates, wherein the carbohydrate moiety is mannan; see experiments I and II employing liposomes coated with "Mn" at col. 9, lines 13+. Given the ratios of "chol" (a conventional lipid which could be substituted with DPPC as taught at col. 6, lines 33+) and of "Mn" in the liposomes of Experiments I and II (Table I at col. 9), these are taken as consistent with the

percent ranges recited in instant claims 32 and 51. Claims 51-55 are anticipated by these liposomes.

Regarding claim 32, note that OVA (an antigen) is reconstituted into mannan coated liposomes (Experiment IV-5, disclosed at col. 10, lines 41+. Such liposomes are consistent with claim 32, which provides no nexus between the "autoimmune disorder" of the preamble and the "antigen" recited after "comprising."

Claims 32, 34-38, 41 and 51-55 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuchiya et al (EP 0,640,347).

Tsuchiya et al disclose liposomes (microparticles comprised of a phospholipid and a glycolipid. The phospholipid can be a hydrogenated phosphatidylcholine from egg yolk (pg 3, lines 26-41). The glycolipid can be coupled to mannan (pg 3, lines 17-25). Molar percentages given at page 3, lines 31-36 are consistent with instant claims 32 and 51.

The liposomes can carry an antigen (e.g. of a microbe); anticipation is stated, since instant claim 32 provides no nexus between the "autoimmune disorder" of the preamble and the "antigen" recited after "comprising."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A Saunders, PhD whose telephone number is 571-272-0849. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan, can be reached at 571-272-0841. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David A Saunders

DAVID SAUNDERS
PRIMARY EXAMINER
ART UNIT ~~182~~ 1644

Typed 2/9/04 DAS